Analysis and Development of UAV Operations in the NAS, Phase I

Completed Technology Project (2009 - 2009)

Project Introduction

Aurora Flight Sciences, in collaboration with Air Network Simulation and Analysis, Inc. (ANSA), proposes to develop a simulation-based methodology to analyze and guide the development of Unmanned Aerial Vehicle (UAV) operations in the National Airspace System (NAS).The key technical accomplishment of the Phase I effort will be the integration of Aurora's 4D Path Planner with ANSA's stochastic NAS simulation. Within this framework, the path planner generates trajectories inside a single ARTCC of interest, and is supported by a coarser ANSA model of the remaining NAS.Simulation requirements will be developed for civil aircraft routing and planning in dynamic, stochastic environments, and will include realistic performance models for both manned and unmanned vehicles. The initial, proof-of-concept simulation environments will be comprised of exactly one ARTCC and one Terminal Area. Aurora will use this simulation to conduct a Capacity Impact Study during the Phase I effort. A major focus of the study will be a parametric analysis in which the effects from varying the UAV separation standards, flight performance, quantity relative to manned aircraft, and total operations growth on NAS performance will be simulated.

Primary U.S. Work Locations and Key Partners

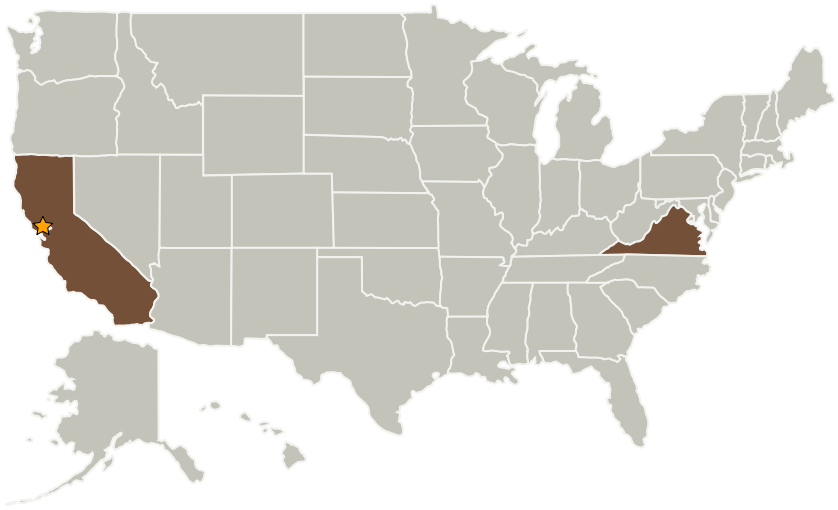

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Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Aurora Flight Sciences Corporation	Supporting Organization	Industry	Cambridge, Massachusetts

Primary U.S. Work Locations	
California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.4 Architectures and Infrastructure